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Protecting Our Most Precious Asset—Enabling High Security for Digital ID

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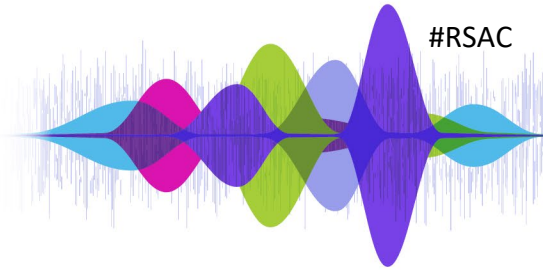

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The Rise of National Digital ID Wallets

National Digital ID Wallets

A Winning Formula for All Stakeholders

Public Authorities

- Enhance fraud prevention
- Facilitate uptake of public digital services
- Improve quality of public services
- Reduce operational costs
- Foundations of digitalization & economic growth

Citizens

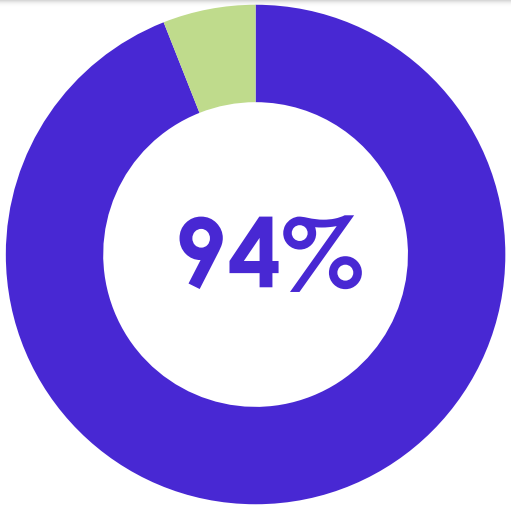
- Secure & easy access to any digital services
- Reduced credentials overload
- Users ID and personal data are protected
- Convenience and availability

Private Service Providers

- Reduce cost of identification & authentication
- Reliable & up to date data
- Compliance with regulations (KYC, GDPR,..)
- Faster customer onboarding

Stakeholders are Highly Enthusiastic about Digital ID

End Users Satisfaction

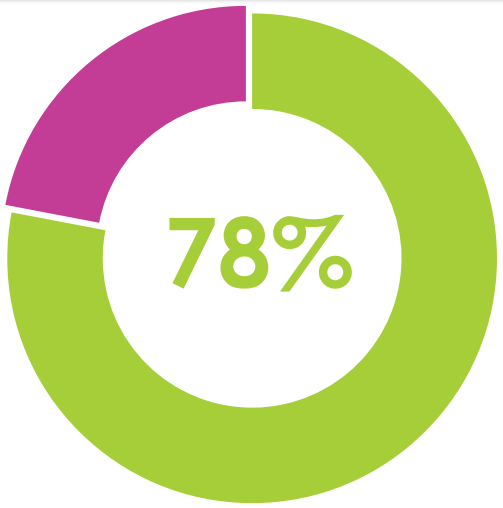


Digital ID Wallet Satisfaction

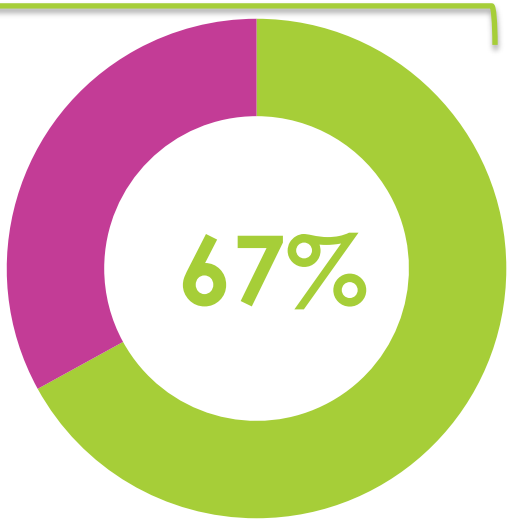
Source: Thales Australia survey

Public Institutions Expected Gains

Reduce Fraud



Improve Public Services

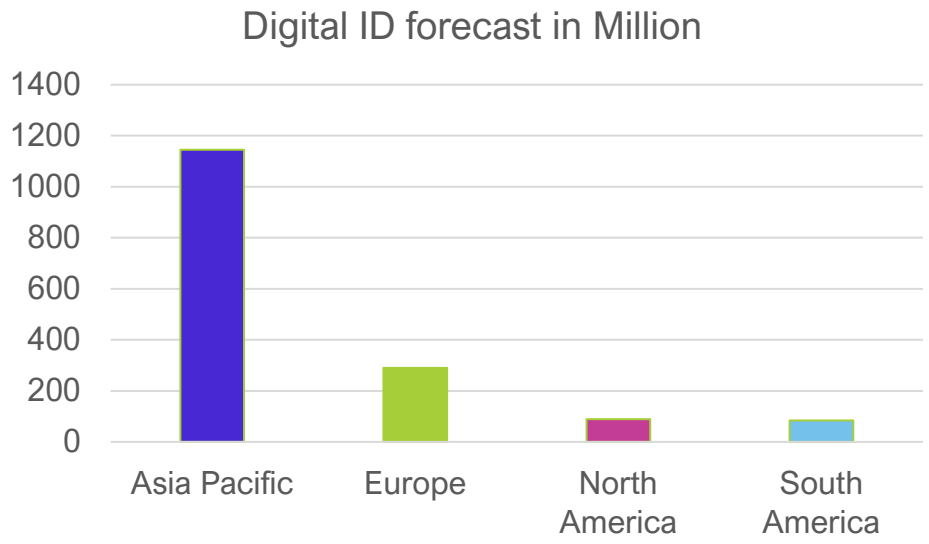


Ease ID Verification

Source: Thales WW 2023 Customer Survey, Evolution and Digitalization of Identity Market

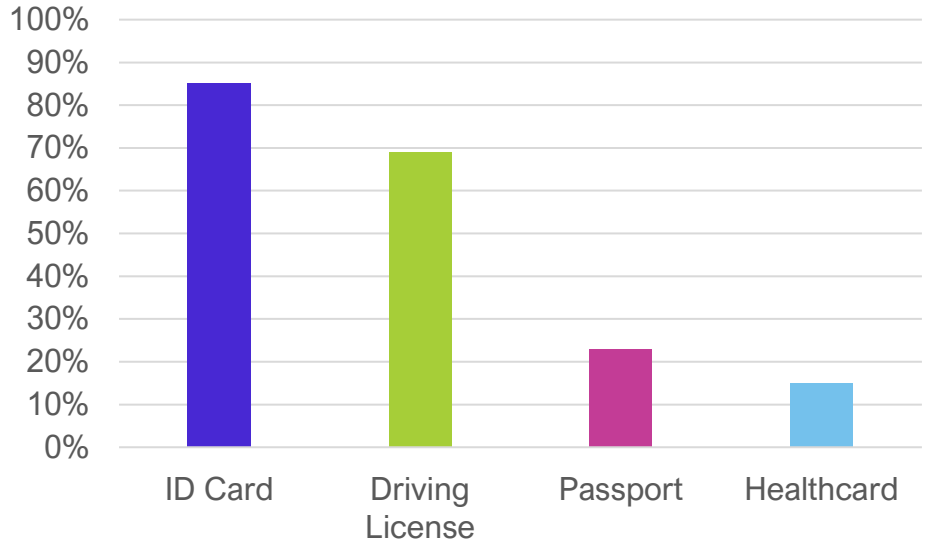
National Digital ID Forecasts

1679 Million Digital ID by 2028



Source: ABi Research – 2023 Report

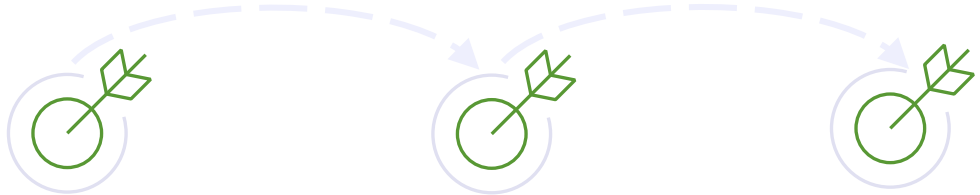
Top 4 documents to be digitalized



Source: Thales Digitalization of Credentials Survey– 2023

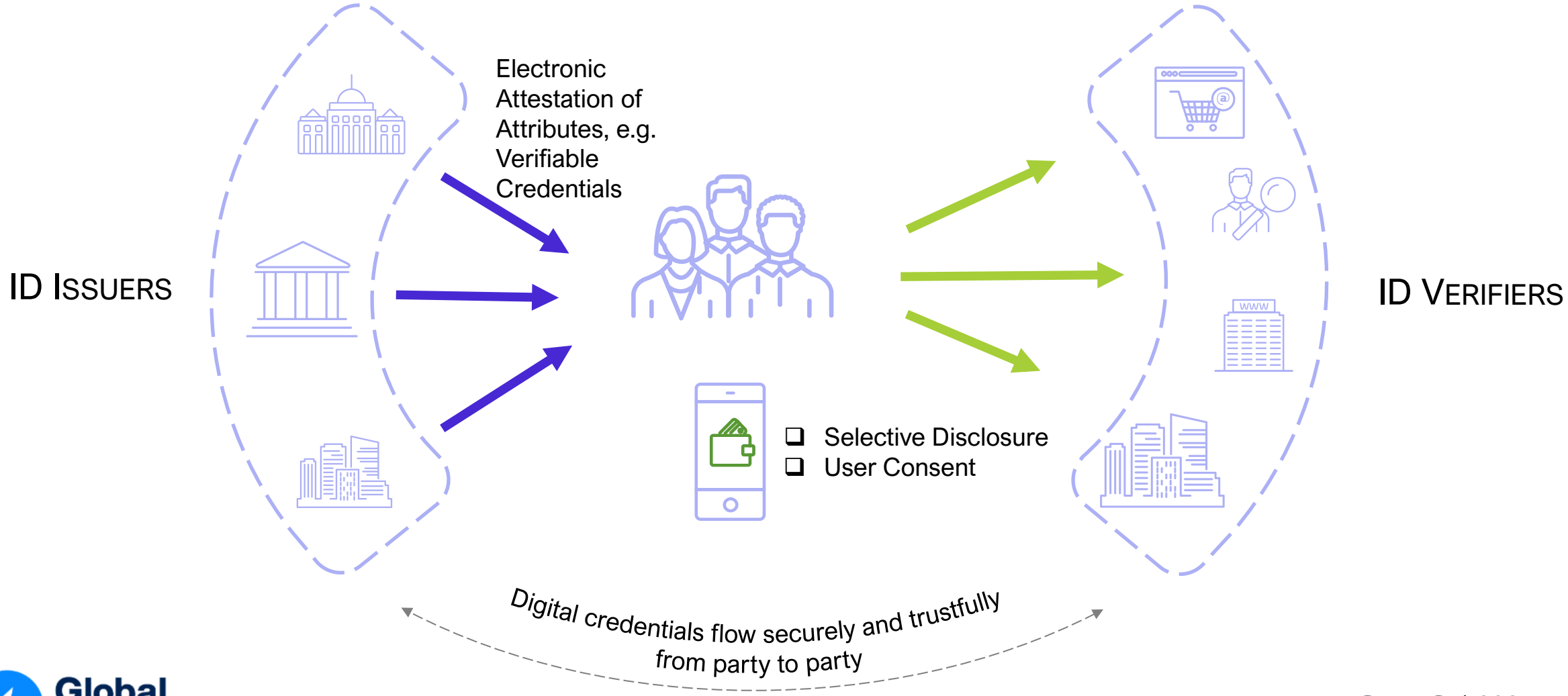
The European Union Digital ID (EUDI) Wallet[1]

- A digital wallet issued by Member States freely for all their citizens
- Accepted throughout the Union by private and public service providers



(1) EU Regulation 2024/1183 also called eIDAS 2.0

The EUDI Wallet puts Citizens at the Center of their Digital Environment


ID ISSUERS
Electronic Attestation of Attributes, e.g. Verifiable Credentials
❑ Selective Disclosure
❑ User Consent
ID VERIFIERS
Digital credentials flow securely and trustfully from party to party

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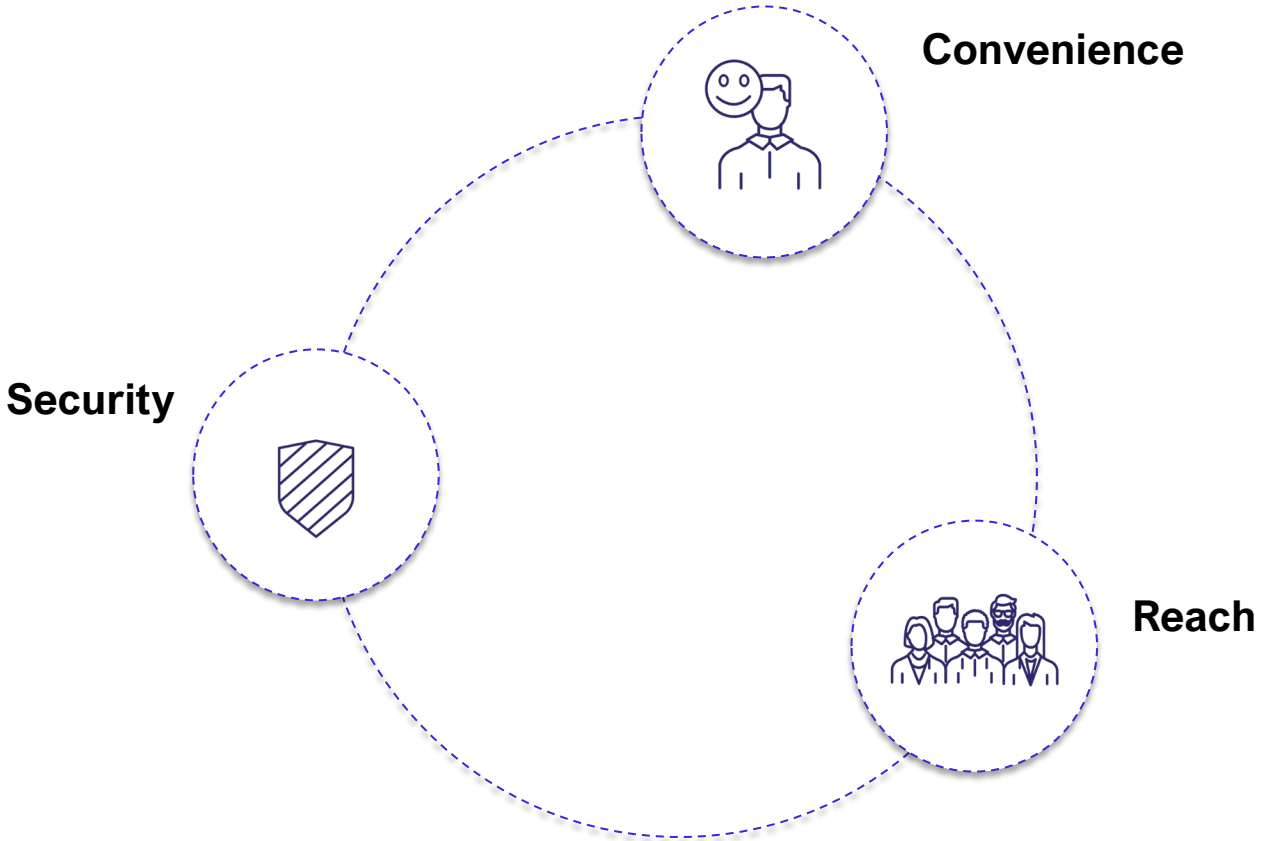
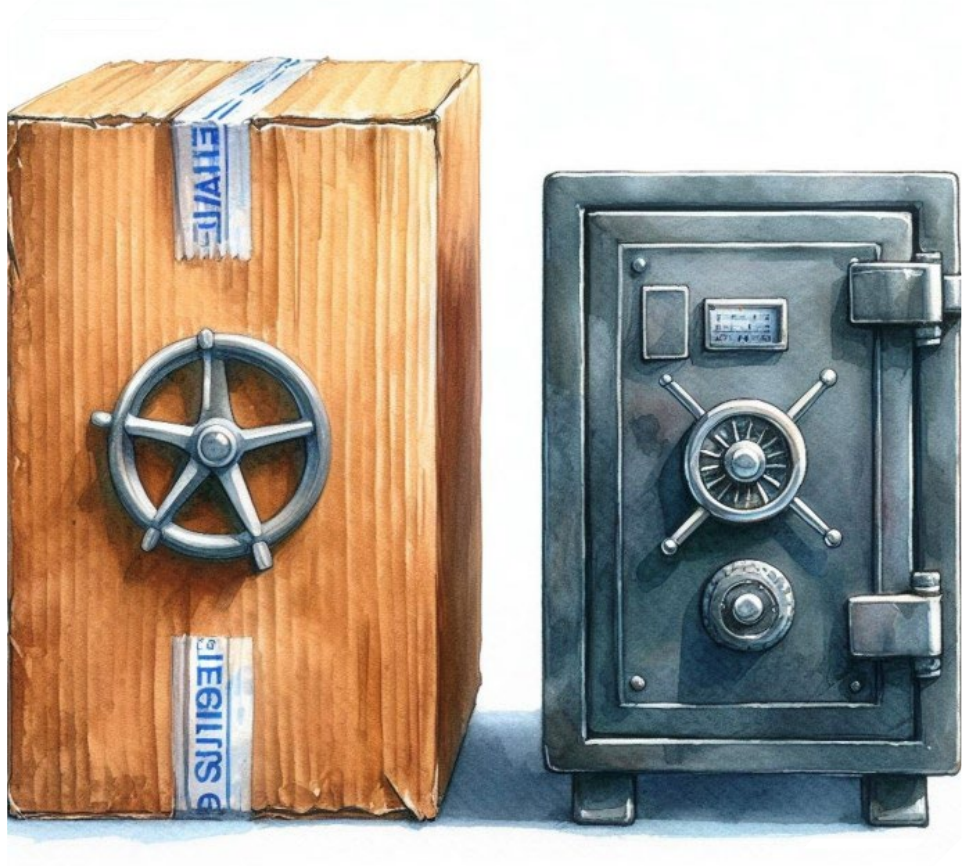
Digital Wallets
Key Success Factors

Key Success Factors for the Digital ID Wallets



Security: the Paramount Success Factor

- Digital ID wallets holds valuable citizen identities and credentials that, if compromised, could lead to widespread fraud and loss of trust
- The security of the wallet must be certified to be resistant to high-potential attackers[1]



(1) The EU Implementing Act 2024/2981 on Wallet Certification requires certification equivalent to Common Criiterai EAL4 AVA_VAN.5

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Secure Elements

The State of the Art in Smartphone Security

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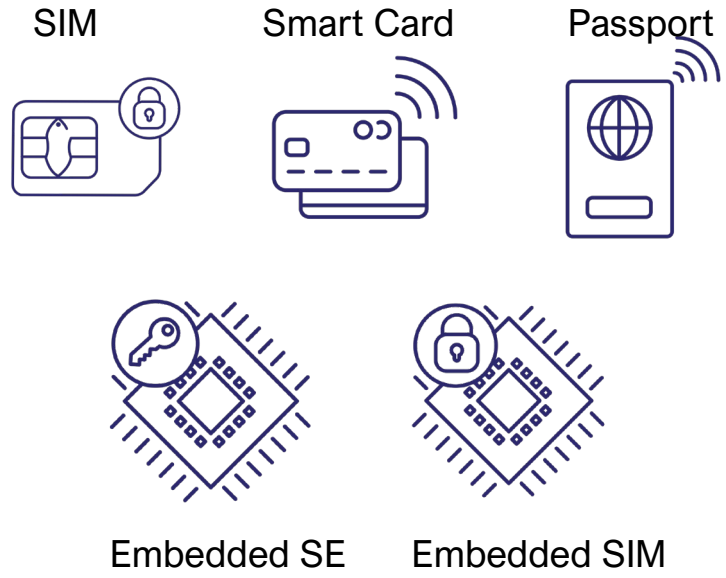
Secure Elements: a Mature[1] Security Technology

SE Embedded Components

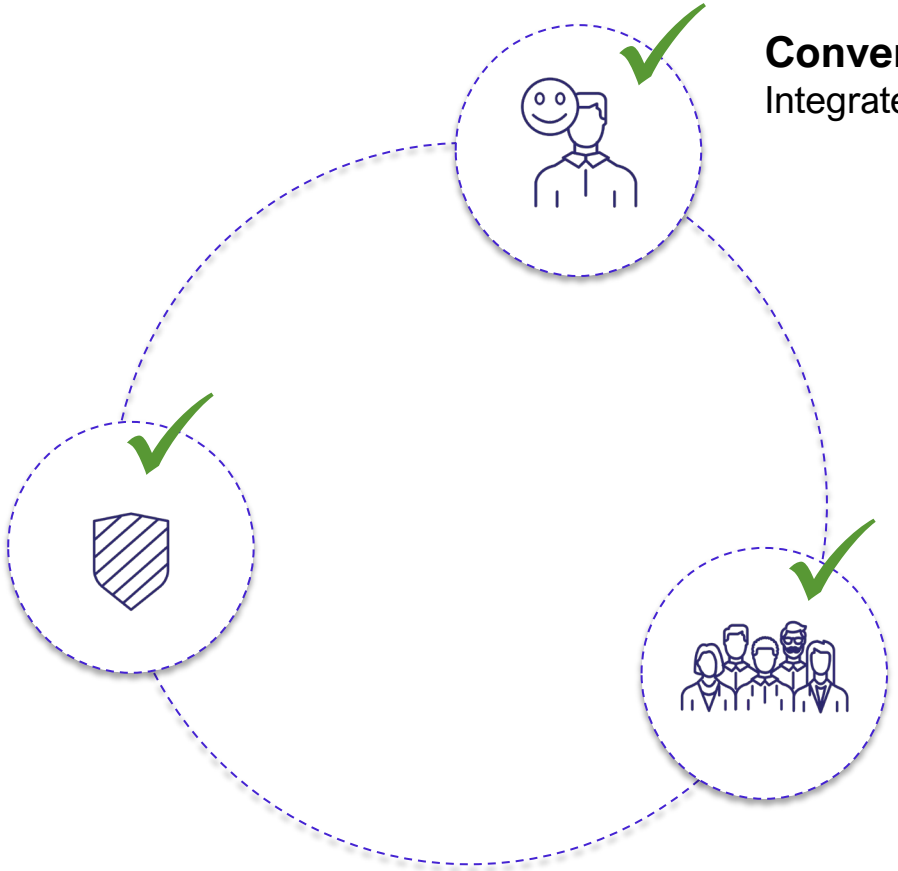
- Applet (e.g. ID, Payment)
- GlobalPlatform SE & Java Card™ APIs
- Java Card™ Virtual Machine
- Secure IC

Form Factors



(1) 62B GlobalPlatform SE shipped as of 2023, GlobalPlatform 2024 Report

Secure Elements: a Proven Technology Maximizing Security, Reach and Convenience



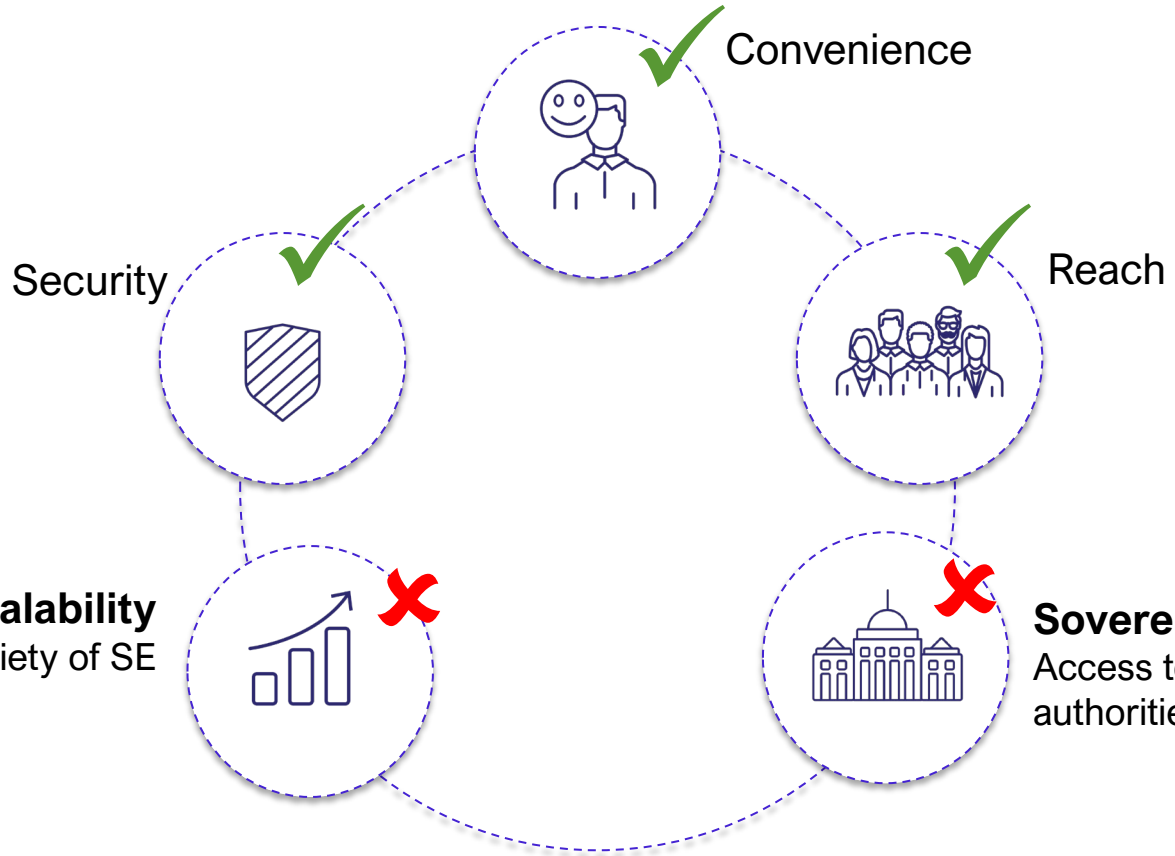
Convenience
Integrated directly into smartphones, managed remotely

Security
Tamper-resistant and certified to high levels of security

Reach
Over 0.5B eSIM shipped in 2024[1]
Over 9B eSIM-capable devices WW by 2030[2]
472M eSIM-capable devices in Europe by 2028[3]

(1) Trusted Connectivity Alliance 2024 eSIM shipment report
(2) Counterpoint Research Note and Blog July 4, 2024
(3) ABi Research eSIM Market Shipments by Use Case, 2023

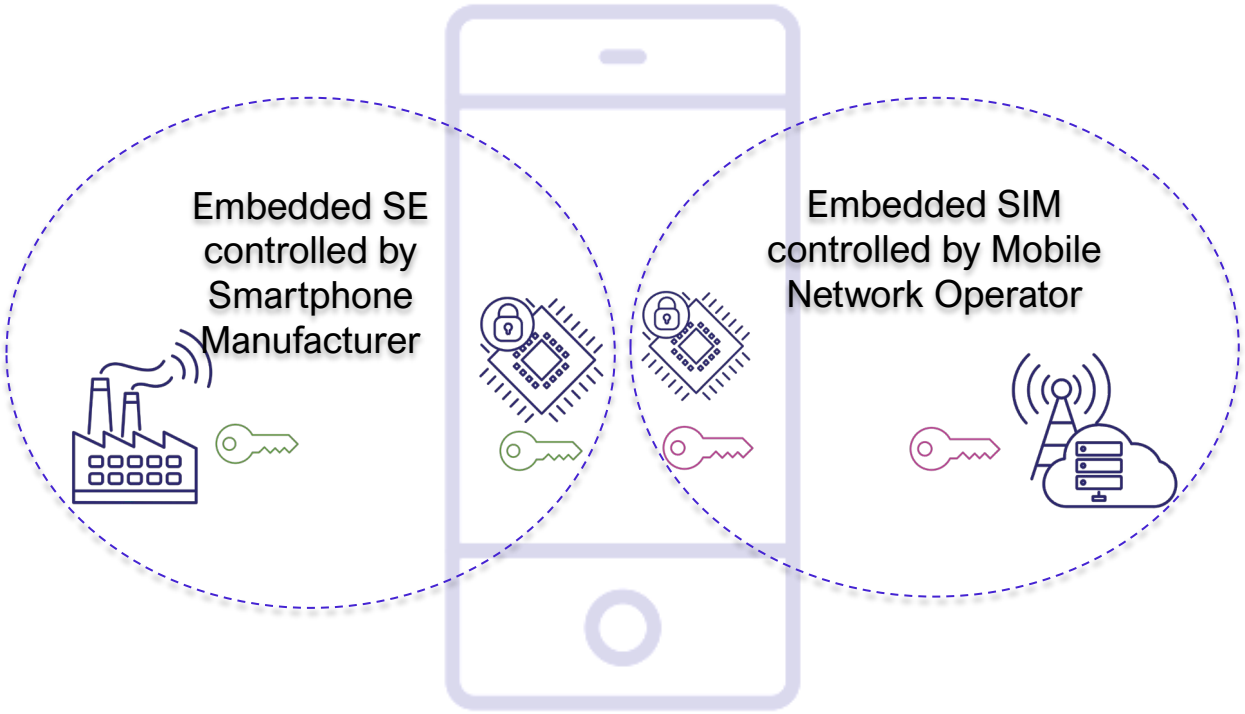
So Why are Secure Elements not Used in Most National Digital ID?



Scalability
Smartphones have a variety of SE

Sovereignty
Access to SE requires authorization from SE controlling authorities

Secure Elements in Smartphones: A Closed Eco-System



Deploying secure National Mobile ID on SE is not scalable given the large number of actors and the large and dynamic base of smartphones

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Secured Application for Mobile (SAM)

Overcoming a closed ecosystem and solving the Scalability and Sovereignty challenges

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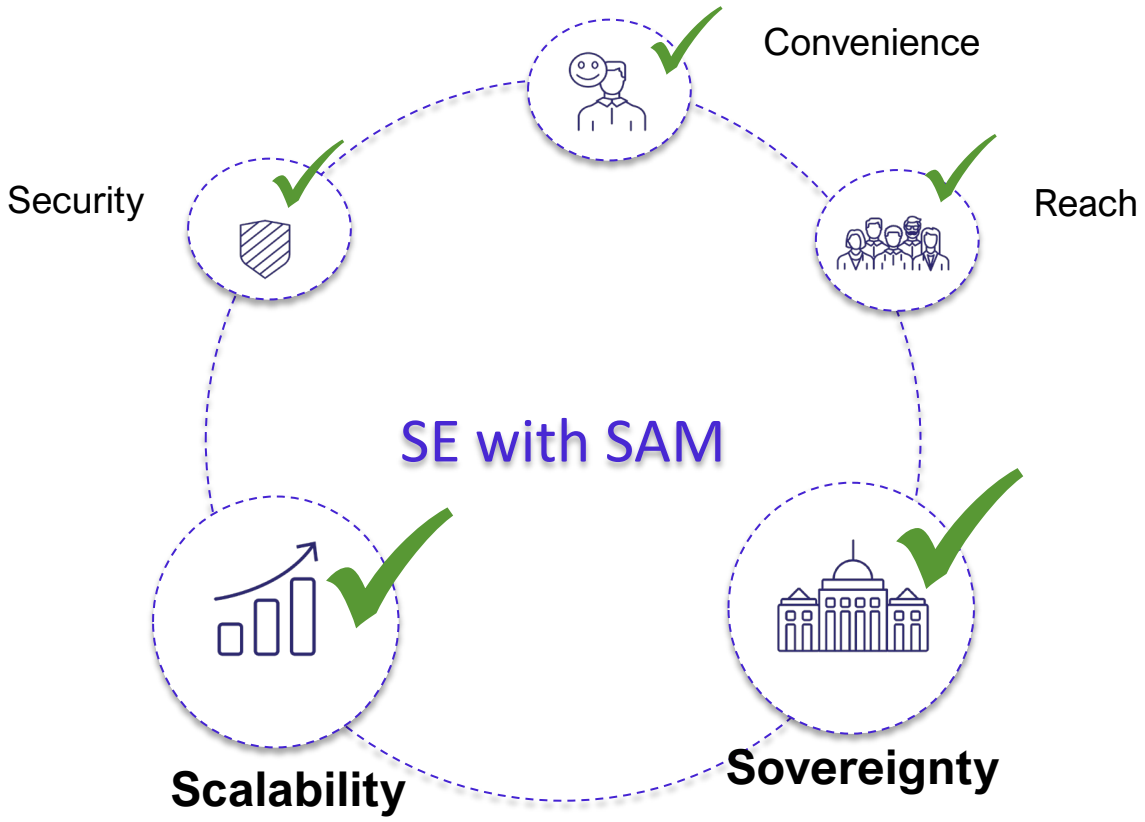
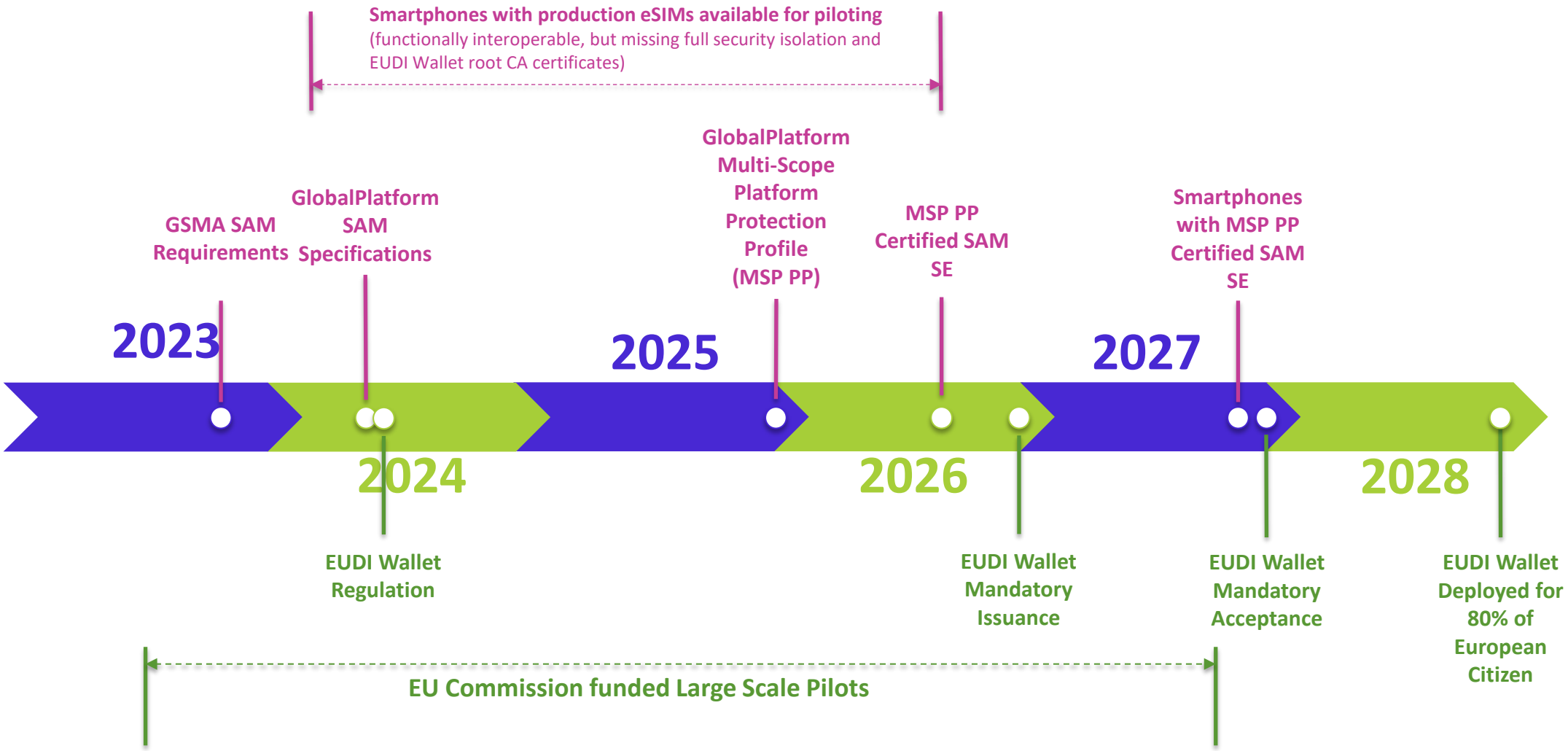
GlobalPlatform SAM Specification[1]

- SAM is an **interoperable** specification for deploying secure applications (like Digital ID Wallets) on Secure Elements in smartphones, independently of manufacturers and mobile network operators
  - Standard framework uniform and sovereign access to SE across devices
  - Security isolation based on PKI



(1) SAM is based on GMSA Secured Applications for Mobile requirements V1.1, 2023

SAM and EUDI Wallet Roadmap


Smartphones with production eSIMs available for piloting
(functionally interoperable, but missing full security isolation and EUDI Wallet root CA certificates)
GSMA SAM Requirements
GlobalPlatform SAM Specifications
GlobalPlatform Multi-Scope Platform Protection Profile (MSP PP)
MSP PP Certified SAM SE
Smartphones with MSP PP Certified SAM SE
2023
2024
2025
2026
2027
2028
EUDI Wallet Regulation
EUDI Wallet Mandatory Issuance
EUDI Wallet Mandatory Acceptance
EUDI Wallet Deployed for 80% of European Citizen
EU Commission funded Large Scale Pilots

SAM is PKI-Based

SE Issuers

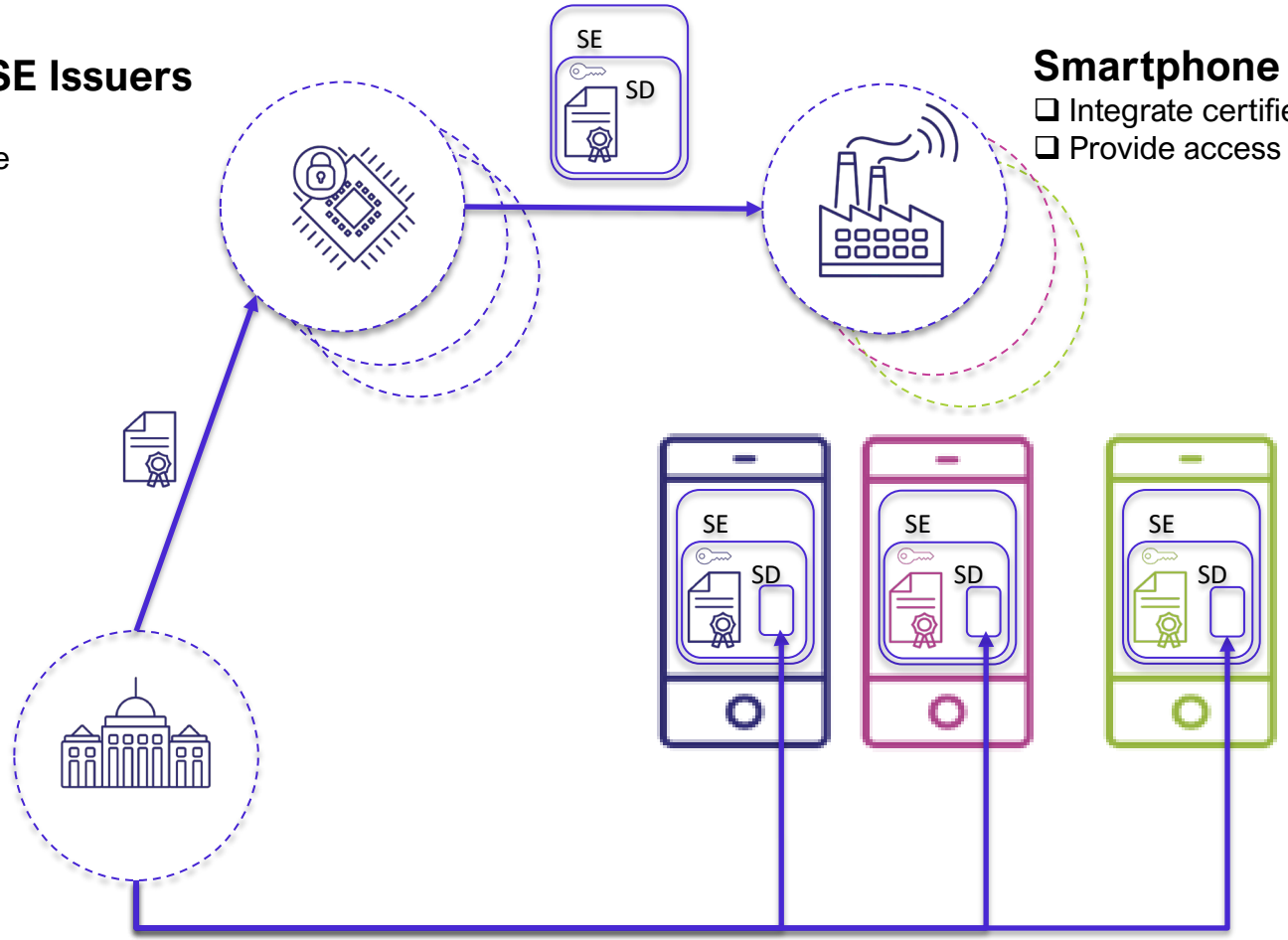
- ❑ Certify SE
- ❑ Provision SE National ID Certificate

Smartphone Manufacturers

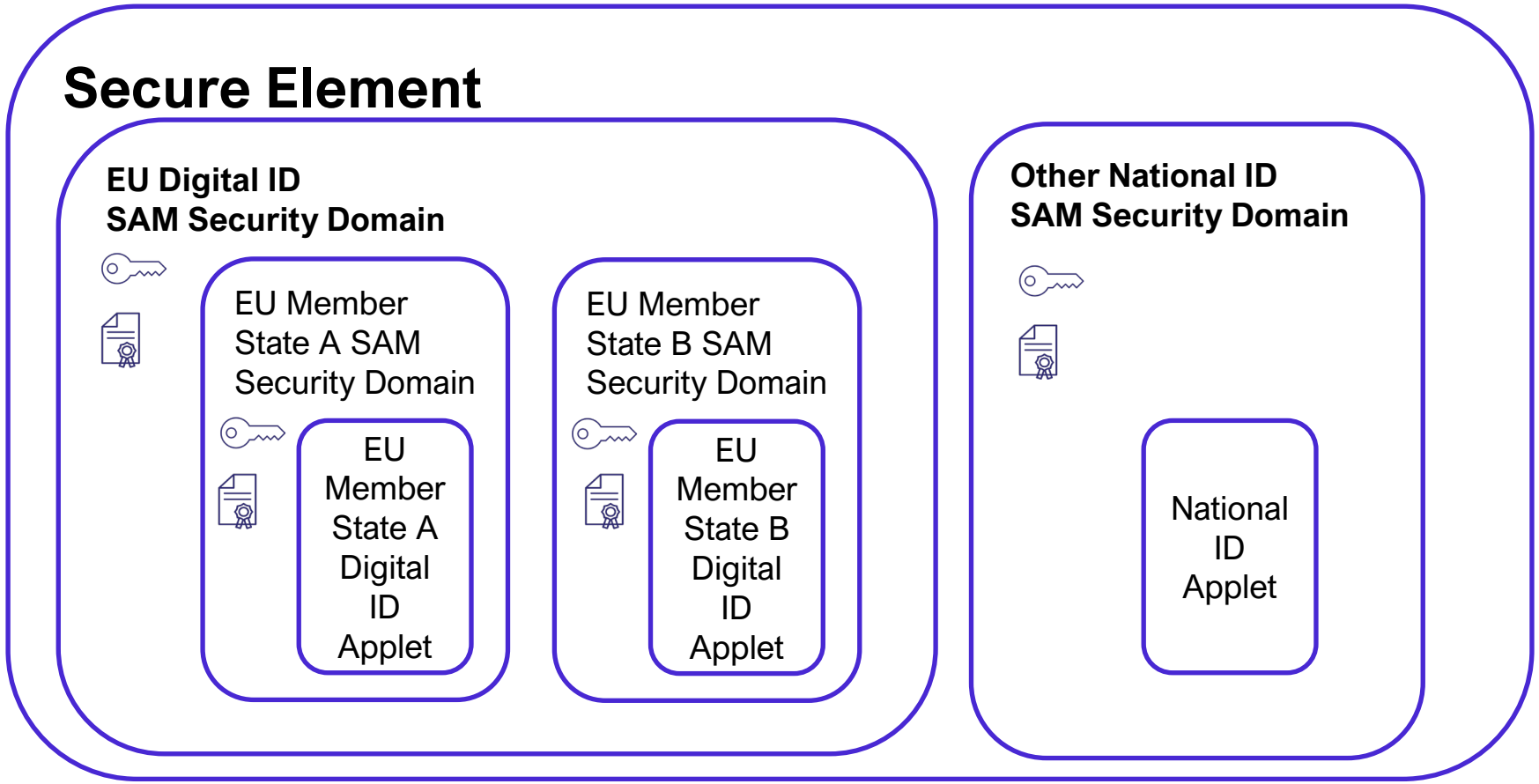
- ❑ Integrate certified SE
- ❑ Provide access layers to the SE

National ID Issuers

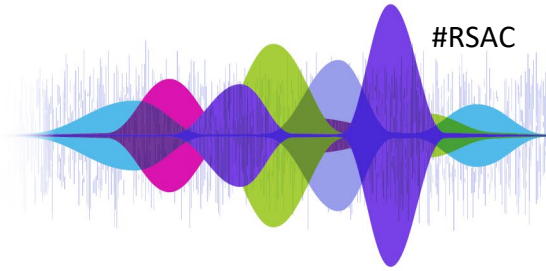
- ❑ Operate root CA
- ❑ Provision ID applet at wallet installation



SAM Provides Each National ID a Fully Controlled, Isolated and Sovereign Security Domain



Drivers for Provisioning of National ID Certificates in SAM



Voluntary Participation of Smartphone Manufacturers

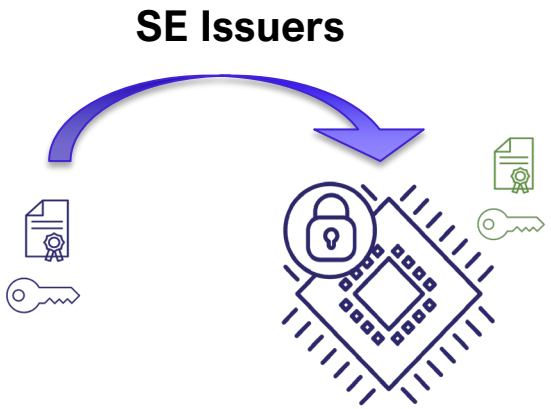
- Provide secure and innovative services to their customers
- Increase market share from the growing demand of secure digital ID solutions

Regulatory Framework

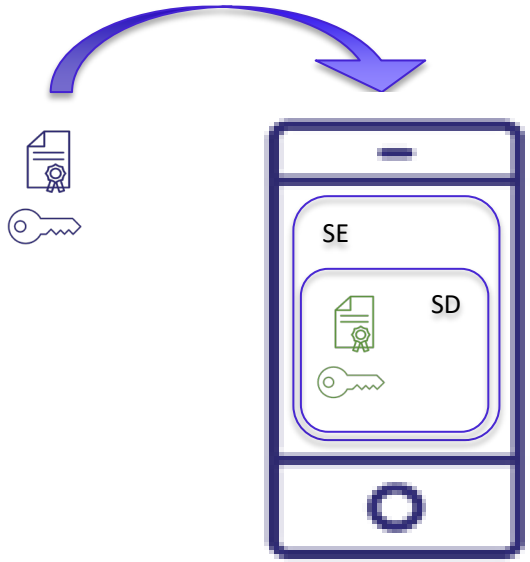
- EU level initiatives to encourages or require smartphone manufacturers to support SAM
- EU-level initiatives or agreements that incentivize participation

Provisioning of National ID Certificates in SAM

At SE Manufacturing time



Post Smartphone Issuance[1]

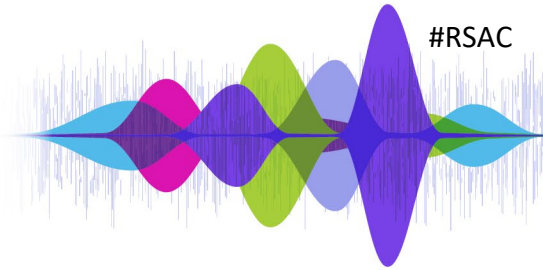


(1) Using Smartphone Vendor Secure Element Issuer Trusted Service Manager (SEI-TSM)

Applying This: Call to Action

	Government & Policy Makers	Wallet Developers	Smartphone Manufacturers
Now	• Review national Digital ID strategies to prioritize Secure Elements (SEs) and SAM for enhanced security, scalability and sovereignty	• Evaluate existing wallet architecture and identify opportunities to integrate SE & SAM as root of trust	• Consider the support of SAM for Wallets in future device models, considering potential regulatory changes and government interest
Within 3 months	• Establish a National authority to manage access to SEs for Digital Identity Wallets.	• Partner with one or more handset manufacturer to pilot SAM solutions on a security domain installed post-issuance with a SEI-TSM on test handsets	• Collaborate with GlobalPlatform and industry partners to pilot and integrate SAM
Within 6 months	• Amend regulation to ensure devices support SAM	• Prepare for the large-scale deployment of SAM-ready SE	• Ensure all new devices support the necessary components for SAM, including SAM-enabled Secure Elements

Summary: Securing the Future of Digital Identity



- **Digital ID Wallets: A Transformative Opportunity.**
- **Secure Elements: The Optimal Security Foundation.**
- **Scalability & Sovereignty: The SAM Solution.**
- **A Call for Collaboration** between policymakers, wallet developers, smartphone manufacturers, and security experts.

By taking concrete steps now to pilot and support SAM, stakeholders can ensure a secure, interoperable, and widely adopted digital identity ecosystem.

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For more information:

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